



ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: V2531-E5 BYPASS RATIO: 4.5
 UNIQUE ID NUMBER: 01P14IA026 PRESSURE RATIO (π_{00}): 32.3
 COMBUSTOR: Floatwall
 ENGINE TYPE: MTF RATED THRUST (F_{00}) (kN): 134.8

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO _x	SMOKE NUMBER
D _p /F ₀₀ (g/kN) or SN	0.3	21.2	61.4	11.1
AS % OF ORIGINAL LIMIT	1.5	18.0	58.7	50.9
AS % OF CAEP/2 LIMIT (NO _x)			73.4	
AS % OF CAEP/4 LIMIT (NO _x)			85.8	
AS % OF CAEP/6 LIMIT (NO _x)			96.7	
AS % OF CAEP/8 LIMIT (NO _x)			112.2	

For non-volatile particulate matter (nvPM) emissions, please refer to the ICAO Engine nvPM Emissions Data Sheet.

DATA STATUS

- PRE-REGULATION
 x CERTIFICATION
 - REVISED (SEE REMARKS)

TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES
 x DEDICATED ENGINES TO PRODUCTION STANDARD
 - OTHER (SEE REMARKS)

EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE
 (ANNEX 16 VOLUME II)

CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)
 - OUT OF PRODUCTION (DATE: -)
 - OUT OF SERVICE (DATE: -)

MEASURED DATA

MODE	POWER SETTING (%F ₀₀)	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO _x	
TAKE-OFF	100	0.7	1.329	0.01	0.39	32.17	2.3
CLIMB OUT	85	2.2	1.079	0.02	0.41	24.28	6.0
APPROACH	30	4.0	0.391	0.09	1.57	11.14	6.3
IDLE	7	26.0	0.144	0.07	10.17	5.58	1.3
LTO TOTAL FUEL (kg) or EMISSIONS (g)			517	28	2503	7521	-
NUMBER OF ENGINES				2	2	2	2
NUMBER OF TESTS				4	4	4	4
AVERAGE D _p /F ₀₀ (g/kN) or AVERAGE SN (MAX)				0.2	18.6	55.8	9.4
SIGMA (D _p /F ₀₀ in g/kN, or SN)							
RANGE (D _p /F ₀₀ in g/kN, or SN)							

ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS
 STAGE BLEED 0 (% CORE FLOW) AT - POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	100.4-102.9
TEMPERATURE (K)	268.2-277.7
ABS HUMIDITY (kg/kg)	0.0014-0.00359

FUEL

SPEC	Jet A
H/C	1.91
AROM (%)	17

MANUFACTURER: International Aero Engines
 TEST ORGANIZATION: Pratt & Whitney
 TEST LOCATION: East Hartford, CT
 TEST DATES: 11/12/2008-19/01/2009

NO_x REGULATION PARAGRAPH

	2.3.2 c) (CAEP/4)
x	2.3.2 d) (CAEP/6)
	2.3.2 e) (CAEP/8)

REMARKS

- Engine performance reflects V2531-E5 Turbofan Engine.
- Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
- NO_x levels in accordance with Part III, Chapter 2, 2.3.2 d) (CAEP/6)

Compliance with Fuel Venting requirements: x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)